DRIVER/OPERATOR TRAINING

Driver/Operator Training

In Yakima County Fire District 12

Nathan D. Craig

Yakima County Fire District 12

Yakima, Washington

Appendix Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov/ to learn how to obtain this report in its entirety through Interlibrary Loan.

CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed:_____

Abstract

The problem was Yakima County Fire District 12's driver/operator training program did not provide a clear path for prospective driver/operators to follow for certification, resulting in inconsistent driver/operator skill levels and a reduced number of certified driver/operators. The purpose of this research was to identify key components of driver/operator training programs that lead to certification used in similar fire departments. A questionnaire and literature review guided the answers to these questions on driver/operator training in Yakima County Fire District 12: (a) what professional standards exist within the fire service that address driver/operator training? (b) what state and local laws apply to driver/operator training programs? (c) what are the key components of effective driver/operator training programs used in similar fire departments? (d) which key components should Yakima County Fire District 12 include in their driver/operator training program? The results of this descriptive research found professional standards exist nationally and at the state level which identified key components of driver/operator training programs. Most fire departments use these standards to train driver/operators. The recommendation of this research was that Yakima County Fire District 12 updates its driver/operator training program to include pass/fail skill tests, a new driver probationary period, and a minimum number of required driving hours with increased documentation of driver refresher training, to provide a clear path leading to certification for all drivers.

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Introduction

"Firefighters who can respond and get apparatus out on the road are a valuable asset to any fire company and their dedicated service to the community is needed" (Dallessandro, 2008a, p. 83), providing a clear training path that leads to certification for driver/operators is essential to providing basic services as a fire department. The Yakima County Fire District 12 (YCFD12) driver/operator training program had not been updated in more than a decade and relied upon subjective evaluation of perspective driver/operators. Due to a lack of new drivers attempting to engage in the current driver/operator sign off process and three apparatus collisions within the past two years, YCFD12 needed to analyze its current driver/operator training program compared to programs in similar fire departments, as well as, current state laws and professional standards to update their driver/operator training program.

The purpose of this descriptive research was to identify key components of driver/operator training programs that lead to certification used in similar fire departments.

The problem is Yakima County Fire District 12's driver/operator training program does not provide a clear path for prospective driver/operators to follow for certification resulting in inconsistent skill levels of current driver/operators subjectively tested on their skills and a lack of new members achieving driver/operator status. A descriptive research methodology will be used to answer the following questions: (a) what professional standards exist within the fire service that address driver/operator training, (b) what state and local laws apply to driver/operator training programs, (c) what are the key components of effective driver/operator programs used in similar fire departments, (d) which key components should Yakima County Fire District 12 include in their driver/operator training program?

Background and Significance

Yakima County Fire District 12 (YCFD12) lies directly to the west of the City of Yakima in Central Washington State. YCFD12 is an Insurance Services Office class 5 department and is approximately 120 square miles of suburban, rural and wilderness area with approximately 18,000 customers protected by four fire stations (D. Leitch, personal communication, June 1, 2011). YCFD12 is a combination fire department with 104 part-time paid firefighters supplemented by a 6 person career staff of a Chief, Deputy Chief, 2 Captains, a Lieutenant and a secretary. YCFD12 does not have any 24-hours-a-day 7-days-a-week staffed stations; all firefighters respond from their homes or place of employment for alarms.

On average Yakima County Fire District 12 responds to approximately 700 service calls per year of which 40% are multi-apparatus responses (C. Boisselle, personal communication, June 17, 2011). The current driver/operator training program for YCFD12 is based upon the Washington State Emergency Vehicle Incident Prevention (EVIP) curriculum for basic training, followed by a subjective review of each prospective driver/operator performed by a YCFD12 company officer. Due to portions of the program being subjective the driver/operator program does not provide a clear path leading to certification of prospective driver/operators, creating a downturn in new apparatus driver/operators in the District. "Within the past five years, Fire District 12 has experienced a drop in qualified drivers and a reduction in new members achieving driving status" (Leitch, personal communication, 2011).

It is important for YCFD12 to determine what driver/operator training program components are necessary to initiate a training program that leads to certification of driver/operators through an objective process that is clearly identified for prospective drivers to follow.

> As a station captain I am concerned with the shortage of qualified driver/operators at my station, many firefighters do not take the initiative to begin driver training when they get off of probation because they feel the process is too complicated to get checked off. Most firefighters that do start driver/operator training only go as far as the smaller apparatus leaving me with a shortage of engine and tender driver/operators. (W. Haubrich, personal communication, April 25, 2011)

This research will have a significant impact on driver/operator training in YCFD12. By identifying the key components necessary to certify driver/operators and creating a clear path of objective tasks necessary to be certified will increase the number of certified driver/operators available in the District. The research will assist other fire departments in Washington State in developing their driver/operator training programs above and beyond the Washington State Emergency Vehicle Incident Prevention curriculum.

"Since 1984, MVCs [Motor Vehicle Collisions] have accounted for between 20 and 25 percent of firefighter fatalities annually" (United States Fire Administration, 2011, para. 8). In line with the strategic plan of the United States Fire Administration, improving driver/operator training through this research will aid both Yakima County Fire District 12 and other Washington State fire departments in the goal of "improving the fire and emergency services capability for response to and recovery from all hazards" (United States Fire Administration, 2011, p. II-2).

There are three significant reasons why it is important to improve driver/operator training in Yakima County Fire District 12 (YCFD12). First, creating a clear path leading to certification for driver/operators with objective components allows new members to see the appropriate steps necessary to gain certification, thus encouraging members to initiate the necessary steps to

become certified driver/operators. Second, training driver/operators to the same standards department-wide and removing the subjective portion of the program will ensure all driver/operators have the same skill level at certification. Third, when driver/operators have been given the necessary training and their skills have been objectively tested, firefighter safety when responding to, operating at and returning from incidents increases.

As discussed in the National Fire Academy's *Executive Leadership* course (United States Department of Homeland Security, 2010), the author recognized the need to transition the driver/operator training program from an antiquated subjective system of showing an officer you can drive to a program built on clear measurable objective standards.

Literature Review

A review of literature related to driver/operator training was begun at the National Fire Academy's Learning Resource Center. While searching the card catalog for literature on driver/operator training the author discovered most articles, standards and laws pertaining to driver/operator training are concentrated on the driving portion of the task. Little was written regarding the position as two parts; driving to and from the incident and operating the apparatus on scene.

"As an engineer, your most important task is to ensure your crew members get home safely…. Another important task is to ensure the personnel inside the structure fighting the fire have a continuous water supply" (Prziborowski, 2008, p. 120).

Fahy, LeBlanc and Molis (2011) reported the number of line of duty deaths in fire apparatus road vehicle crashes has averaged 15 deaths a year for the past 10 years making this the second leading cause of firefighter line of duty deaths. While apparatus crashes are the second leading cause of firefighter deaths, Karter and Molis (2010) found that apparatus crashes

account for only 6.3 percent of firefighter injuries. The United States Fire Administration (2011) estimated 81,070 firefighter injuries occurred annually between 2006 and 2008, of those injuries 4,880 occurred while responding to or returning from an incident per year.

Jenaway (2010) concluded that when an apparatus operator gets behind the wheel he has the lives of others in his hands. Jenaway also states "a fundamental driver-training program should educate the trainee on the data regarding fatalities, injuries, collisions and near misses;… the impact of vehicle collisions upon the individuals involved and the organization" (2010, p. 28).

> An average of 403 United States military service members on active duty died each year from motor vehicle accidents between 1998 and 2009. Motor vehicle accidents are the leading cause of death among U.S. military members during peacetime. During the four years prior to operations in Iraq and Afghanistan, one-third of service member deaths were caused by motor vehicle accidents. Since the beginning of those operations, there have been nearly as many deaths of service members due to "transportation accidents" as war-related injuries. (DeFraites, 2010, p. 2)

The National Fire Protection Association (NFPA) has several standards that address driver/operator training. NFPA 1002 *Fire Apparatus Driver Operator Professional Quailifications* (2009) lists general qualifications for driver/operators in regards to preventative maintenance, driving apparatus and operating pumping apparatus. NFPA 1002 in addition to outlining driving skills necessary for drivers, also requires operational skills in pumping apparatus;

> Produce effective hand or master streams, given the sources specified in the following list, so that the pump is engaged, all pressure control and vehicle safety devices are set,

> the rated flow of the nozzle is achieved and maintained, and the apparatus is continuously monitored for potential problems. (NFPA 1002, 2009, para. 5.2.1)

NFPA 1451 *Standard for a Fire Service Vehicle Operations Training Program* (2007) outlines that the fire department establish and maintain a driver training program for all members and initiate training not less than twice a year, members are to be trained in operating each class of vehicle before being authorized to drive, and members be reauthorized annually through hands-on exercises for all vehicles they are expected to drive.

"Drivers of fire apparatus shall be directly responsible for the safe and prudent operation of the vehicles under all conditions" (NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program*, 2007, p. 14). NFPA 1500 also states members must successfully complete an approved driver training program in order to operate fire apparatus.

The National Wildfire Coordinating Group (2008) determined the driver/operator skills within their course S-216 *Driving for the Fire Service* were being provided by state and other agency programs and deleted the course from their curriculum.

Yakima County is located in the State of Washington therefore laws and statutes pertaining to driver/operator training are provided by the State of Washington. Revised Code of Washington [RCW] 46.25.050 (2011, p.1) identifies commercial driver's license as required for drivers of all commercial vehicles. However, this requirement does not apply to firefighters operating emergency equipment if the firefighter has successfully completed a driver training course approved by the director. Washington Administrative Code [WAC] 296-305-04505 (1997, p. 1) states "all operators of emergency vehicles shall be trained in the operations of apparatus before they are designated as drivers of such apparatus. The training program shall be established by each fire department."

The Washington State Fire Protection Bureau *Fire Department Vehicle Incident Prevention Standard* (2008) was developed for fire departments to adopt the standard rather than have their driver/operators obtain a commercial driver's license. The Emergency Vehicle Incident Prevention (EVIP) certification initially consists of eight hours classroom, a driving rodeo course and road course. Driver/Operators must have a minimum of two hours per year of documented driving that meets the EVIP performance objectives to recertify, or complete the entire approved driver training program on a four year cycle. The EVIP performance objectives include knowledge of vehicle control, braking, load factors, reaction time, seatbelt use and defensive driving as well as preventative maintenance tests, inspections, servicing functions and driving skills such as manipulating a cone course. Over the road testing on a variety of skills mirroring the NFPA requirements outlined in NFPA 1002 are also required.

"All operators of emergency vehicles shall be trained in the operation of their assigned apparatus before they are designated as driver of such apparatus. The District shall establish a drivers training program" (Yakima County Fire District 12 [YCFD12] Policy 2104 *Fire Apparatus Operational Safety,* 2008, p. 2). YCFD12 policy 2104 also lists the Washington State EVIP program as required training for members prior to being authorized to operate District vehicles.

According to YCFD12 Standard Operating Guideline (SOG) 6-1 *Driver Training Program,* all operators must maintain proficiency in each apparatus they operate and yearly complete a driver check sheet, EVIP rodeo and road course (Yakima County Fire District 12 [YCFD12], 2007). SOG 6-1 (YCFD12, 2007) requires that the content of the driver training program meet or exceed NFPA 1002. All trainees must pass Washington State Emergency Vehicle Incident Prevention Program (EVIP). Any member that is a current apparatus operator

is allowed to train other members so long as a District Officer completes the final check off. A practical examination for trainees is listed including a list of scenarios the trainee must demonstrate proficiency in while making no critical safety errors and no more than three minor errors (YCFD12, 2007).

Hess (2011) cites backing emergency vehicles as extremely hazardous due to blind spots deterring the driver's ability to see possible risks. To help reduce the risk of these accidents two new tools have been developed for emergency service organizations to use in training drivers. Berardinelli, Koedam, Lutz, and Wertman (2011) suggested fire departments consider requiring a commercial driver's license for all operators and provide training to drivers based on NFPA standards.

Several courses offered by Volunteer Firemen's Insurance Services (VFIS) address the driving aspect of training driver/operators. VFIS *Emergency Vehicle Response Safety* (1997) identifies emergency vehicle driver training needs to be more than just getting a nod from the organization, measurable proficiency must be proven by a prospective driver in the following areas; classroom training at a minimum of eight hours, a written test, hands-on training of at least 10 hours drive time measuring depth perception, peripheral vision, using mirrors, braking and turning followed by regular ongoing training combining hands-on driving and classroom time. VFIS *Emergency Vehicle Driver Training* (2008) states a comprehensive emergency vehicle driver training program needs to have written objectives that specifically address critical areas of operation and contain classroom instruction, a competency course, street and highway driving, written testing and annual over the road retraining and education based upon each members driving activity. Recommended subjects to cover in the classroom portion range from standard operating procedures, legal aspects, safety and vehicle characteristics; each driver should spend

sufficient time on the competency course to be proficient in using mirrors, stopping, turning, backing and depth perception, successful completion of the competency course requires each driver to negotiate the course without hitting any cones using a point system to score each run. VFIS recommends over-the-road driving a minimum of 10 hours supervised where the driver demonstrates their competency on each type of vehicle they are expected to drive, and refresher training be provided for a minimum of four hours classroom time followed by actual driving based upon each driver's previous number of emergency calls driven, driving environment, length of service and employment experience with each driver.

FEMA (2004) reviewed several fire apparatus driver training programs and found a wide variety of course programs were being used varying from a 10 week academy covering driving and operating various apparatus to a 32 hour course consisting of defensive driver classroom training, course driving and the use of a simulator.

Army regulation 600-55 (2007) outlines selection, training, testing and licensing for army drivers including recommended training for instructors to have proper knowledge of the subject material and teaching ability, before training students and requiring sustainment training to maintain a high level of skill proficiency and prevent drivers from acquiring poor driving habits annually. "Emergency vehicle operators must complete an emergency vehicle training program prior to assuming operator duties, and every 3 years thereafter" (Army Regulation 600-55, 2007, p. 11).

The focus of most driver/operator training programs is on driving safely to prevent firefighter fatalities and injuries. "84% of the nation's fire departments require driver training. In about 14 percent of departments, training is offered, but it is optional" (Peterson, Amandus, & Wassell, 2009, p. 82). Dallessandro (2005) noted driving instructors have a huge impact on

driver recruiting and set the tone for how new drivers operate. Dallessandro (2008b) also suggested fire departments encourage driver training to change bad habits including suggesting every drill no matter the subject begin with 10 minutes of training in driver safety. "Fire apparatus drivers need practical experience and training hours in the front seat before their first emergency run" (Salka, 2007, p. 134).

Erich (2007) discovered agencies that conduct no driver training average six accidents for every 10 vehicles operated, those that train every three years dropped the rate to 1.5 accidents per 10 vehicles. Dallessandro (2009) found there is a significant disconnect between what is taught in driver/operator training courses and what is actually running through drivers minds when driving to an incident. "The more time you spend on the road, the more experience you will gain to become a safe, responsible, and knowledgeable driver" (Soard, Maker & Echeverri, *Fleet Driver Safety*, 2009, chap. 9). Nasta (2010) found in many cases driver training takes a backseat to pump operation training when fire departments conduct driver/operator training, although pumping is an important skill, driver/operators must get the apparatus safely to the scene to be effective.

Leidig (2008) recommends driver/operators complete a state vehicle operator course followed by an assigned mentor to teach orientation of all apparatus. Leidig suggests new driver/operators be under a probationary period for one year to test their skills, followed by 20 hours of documented driver's training, completion of an obstacle course twice yearly, attend a yearly pump test with the department mechanic and participate quarterly in pump operations training.

"Fire departments across the state [Florida] have a wide variety of training and testing processes. It is admittedly difficult to assess one against another as they often use very different methods to achieve the same … result" (Altman, 2008, p. 29).

To summarize, fire apparatus crash driving to and from incident scenes, resulting in line of duty deaths (LODD) and injuries to firefighters, behind heart attacks and strokes vehicle collisions are the second leading cause of LODD's. Much of the professional standards for driver/operator training is based on safety as it pertains to the driving portion of the driver/operator position. While a pump operator must know how to properly run the fire pump at the scene of an incident, it is equally important that the driver/operator gets the apparatus safely to the scene. Driver/operator training is listed within several National Fire Protection Association (NFPA) standards as well as specifically addressed in its own standard, in addition to NFPA; VFIS provides specific standards for training driver/operators.

Washington State law specifically addresses driver/operator training for the fire service and includes a training program fire departments can use to certify drivers without commercial drivers licenses. Driver training for Washington State also covers the driving aspect of the position and lists subjects to be covered in a classroom setting, as well as, over the road skills drivers must demonstrate proficiency in. Yakima County Fire District 12 (YCFD12) addresses driver/operator training both in policy and standard operating guidelines outlining the use of the Washington State Emergency Vehicle Incident Prevention program (EVIP) and NFPA standards. YCFD12 addresses both the driving aspect of the position, as well as, assuring each apparatus driver/operator is trained in the operation of the vehicle they are assigned to drive.

Driver/operator training programs vary in the amount of time drivers must train per year to maintain certification however, most identify time on the road actually driving the apparatus as the most valuable part of a driver/operator training program.

Procedures

The purpose of this research was to identify key components of driver/operator training programs that lead to certification used in similar fire departments. Descriptive research was used to discover the key components of effective driver/operator training programs used by similar fire departments, which professional standards and state laws pertain to fire department driver/operator training, and which of these components should be included in YCFD12's driver/operator training program.

What Professional Standards Address Fire Service Driver/Operator Training

National Fire Protection Association (NFPA) standards, Volunteer Firemen's Insurance Services (VFIS) curriculum and fire service trade magazine articles were used to answer what professional standards for driver/operator training exist within the fire service. The author reviewed NFPA standards to determine which standards specifically addressed driver/operator training and which standards contained driver/operator training sections within a standard on a different topic.

VFIS driver training curriculum was used as a professional standard to base driver/operator training on due to VFIS training material being fire service specific and utilized nationwide in the United States. The author reviewed fire service trade magazines to discover articles written regarding standardizing driver/operator training.

What State and Local Laws apply to Driver/Operator Training

State law and Yakima County Fire District 12 (YCFD12) policies and guidelines were used to answer what state and local laws apply to driver/operator training programs. The author studied the Revised Code of Washington (RCW), the Washington Administrative Code (WAC), YCFD12 policies, and YCFD12 standard operating guidelines to determine which laws or rules apply to YCFD12's driver/operator training program.

What are the Key Components of Effective Driver/Operator Programs in Similar Departments

To determine the key components of effective driver/operator training programs used by similar fire departments, the author developed a web based questionnaire located in The Appendix. The questionnaire contained specific response questions gathered from the information discovered during the literature review; the purpose of the questionnaire was to discover key components of effective driver/operator programs used in similar fire departments.

The questionnaire was sent to all members of the Washington State Fire Chiefs Association. A state perspective was chosen for the questionnaire to reach fire departments operating under the same laws as YCFD12. The sample size was selected by the number of fire departments willing to participate in the questionnaire within the time frame of June 30, 2011 to August 1, 2011. The author requested that respondents be responsible for driver/operator training within their agency. Questions 1 through 8 were used to determine how similar the agency responding to the questionnaire was to YCFD12 and questions 9 through 15 were used to determine the key components of the respondents' driver/operator training program.

Which Key Components Should Yakima County Fire District 12 Include in Their Program

The author used information gathered in the literature review and the questionnaire in The Appendix to answer which key components YCFD12 should include in their driver/operator training program.

Results

What Professional Standards Address Fire Service Driver/Operator Training

National Fire Protection Association (NFPA) 1451 *Standard for a Fire Service Vehicle Operations Training Program* (2007), NFPA 1002 *Fire Apparatus Driver Operator Professional Qualifications* (2009) and NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program* (2007) are professional standards recognized in the United States. NFPA 1451 (2007) specifically addresses driver/operator training programs and sets standards for establishing and maintaining a training program for each class of department apparatus. NFPA 1002 (2009) provides general qualifications for driver/operators outlining skills required for both driving and pumping apparatus. NFPA 1500 (2007) provides additional safety requirements of an effective program and brings driver/operator training into the safety and health program for fire departments.

Volunteer Firemen's Insurance Services (VFIS) provides standards on apparatus driver training programs within two courses, *Emergency Vehicle Response Safety* (1997) and *Emergency Vehicle Driver Training* (2008). The VFIS programs contain measurable proficiencies for drivers to obtain, written objectives, recertification procedures and competency courses.

What State and Local Laws apply to Driver/Operator Training

In accordance with state laws Yakima County Fire District 12 driver/operators do not need commercial driver's licenses if the district utilizes the Washington State Emergency Vehicle Incident Prevention (EVIP) program (RCW 46.25.050, 2011). Washington Administrative Code (WAC) 296 305-04505 (1997) outlines the training requirements for fire apparatus driver/operators including the Washington State Fire Protection Bureau *Emergency*

Vehicle Incident Prevention (2008) training program as the state fire apparatus driver training standard.

Locally YCFD12 policy 2104 *Fire Apparatus Operational Safety* (2008) cites the state EVIP program as the driver/operator training program for the District. Policy 2104 maintains that drivers of YCFD12 apparatus must be trained in the operation of each apparatus they are assigned to drive before being asked to drive the apparatus. YCFD12 Standard Operating Guideline (SOG) 6-1 *Driver Training Program* (2007) lists NFPA 1002 and Washington State EVIP as the standards to follow for the District driver training program. SOG 6-1 states for drivers to maintain proficiency yearly they must complete a driver's check sheet for all apparatus they drive, a driving cone course and road course.

What are the Key Components of Effective Driver/Operator Programs in Similar Departments

One hundred-eighty fire departments responded to the questionnaire. To determine which of these respondents were similar to Yakima County Fire District 12 (YCFD12), a criterion was established to narrow the results. Respondents from Washington State that described their agency as a combination or volunteer department with similar geographical size, number of members, and similar number of apparatus were used for similarity to YCFD12.

Of the 180 questionnaires answered, 179 were from Washington State and 93 of those describe their agency as a combination fire department with an additional 25 as volunteer fire departments.

Eighty percent of respondents cited EVIP as their main driver training course and 23 percent supplemented EVIP with VFIS driver training programs. Completion of an objective course such as EVIP or VFIS was the number one key components selected by respondents, followed by a rodeo course, road course, officer ride along and written test. Several respondents

suggested the use of a task book both for driving and operating each apparatus as well as in addition to EVIP a pump class for all driver/operators.

Seventy-five percent of departments institute a yearly training program for all driver/operators modeled after the Washington State EVIP curriculum and 133 require a skill test in the operation of the apparatus before signing off a driver. Another key component noted was providing additional training for driver/operators of water tenders and aerials.

Table 1

Key Components of Washington Fire Departments Driver/Operator Training Programs

Key Components	Number of Respondents
WA State EVIP course	131
VFIS Driver Training	38
Completion of an Objective Course	156
Rodeo Course	144
Road Course	131
Officer Ride Along	119
Written Test	103
Operational Skill Test	133
Additional Training for Tenders/Aerials	99

Which Key Components Should Yakima County Fire District 12 Include in Their Program

Based on the literature review, state and local laws, and the questionnaire results, Yakima County Fire District 12 (YCFD12) should utilize the Washington State EVIP training course supplemented by the VFIS driver training program. Key components for the program include

written testing, objective skills tests both in driving and operating apparatus, utilizing a required number of hours both for initial certification and yearly refresher training.

Additionally, YCFD12 should establish a driver/operator probation period that includes pump operator school and case studies of driving related line of duty deaths. Update policy 2104 and SOG 6-1 to include the verbiage from NFPA 1451 for competency testing.

Discussion

The purpose of this research was to identify key components of driver/operator training programs that lead to certification used in similar fire departments. The results from the procedures answered the research questions: what professional standards exist within the fire service that address driver/operator training; what state and local laws apply to driver/operator training programs; what are the key components of effective driver/operator programs used in similar fire departments; which key components should Yakima County Fire District 12 include in their driver/operator training program.

Peterson, Amandus and Wassell (2009) found that fire service motor vehicle crashes have increased over the past three decades relative to other safety issues; the average number of line of duty deaths (LODD) dropped by one third however, the average number of LODD's caused by crashes did not change over the same period of time. In 2010, 19 firefighters were killed in 11 motor vehicle collisions (Fahy, LeBlanc & Molis, 2011, p. 4), Kartner and Molis (2010) found that in 2009 4,965 firefighter injuries while responding or returning from alarms were reported. The United States Military identifies motor vehicle accidents as the leading cause of death for members and points out driving and riding in military vehicles can be hazardous in unfamiliar settings including inclement weather, narrow roads and bridges (DeFraites, 2010) all of which fire apparatus must be operated in.

Jenaway (2010) stressed a good driver training program needs to contain plenty of respect for the emergency vehicle and Prziborowski (2008) listed the driver/operator as one of the most important tasks in the fire service, driver/operators need to be qualified for the job and have a high level of awareness for safety. "Accidents resulting from backing emergency vehicles are unfortunately all too common. These incidents often result in minor property or vehicle damages but sometimes are severe or even fatal" (Hess, 2011, p. 1).

The number of LODD's and injuries from apparatus related incidents stresses the need for a quality driver/operator training program. Fire departments in the United States operate under a wide array of programs and plans however, one thing all fire departments have in common is the need to respond to every incident with a driver/operator behind the wheel of a fire apparatus.

Professional standards addressing driver/operator training published by the National Fire Protection Association (NFPA) give fire departments a clear view of driver/operator qualifications, safety measures and training programs, leaving room for individual departments to modify driver/operator training to meet their specific needs. NFPA 1002 *Fire Apparatus Driver Operator Professional Qualifications* (2009) provides driver/operators job performance requirements to meet, prior to operating fire department vehicles, specifically in preventative maintenance and driving/operating fire apparatus. NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program* (2007) charges fire departments with establishing specific rules and procedures relating to operating apparatus in emergency mode and identifies safety procedures for driver/operators to follow.

Specific to fire service driver/operator training programs, NFPA 1451 *Standard for a Fire Service Vehicle Operations Training Program* (2007) identifies basic training and education

requirements for all driver/operators including, having driver training as often as necessary, but not less than twice a year. Annual training must include hands-on exercises, defensive driving techniques, potential hazards of emergency vehicle operation and department procedures.

In addition to NFPA, Volunteer Firemen's Insurance Services (VFIS) *Emergency Vehicle Response Safety* course (1997) identifies four measurable proficiencies driver/operators must pass before being given the authority to drive fire department apparatus: 1) a minimum of eight hours classroom training focusing on attitude and knowledge of apparatus driving, 2) written testing on the classroom portion with candidates posting a successful score before initiating any hands-on training, 3) ten hours of supervised driving both on an obstacle course and over the road measuring depth perception, vision, use of mirrors, backing, stopping and turning, 4) ongoing training consisting of both hands-on and classroom training to be completed on a regular basis. *Emergency Vehicle Driver Training* (VFIS, 2008) is a complete driver training program including classroom discussion on the problems facing drivers, the drivers themselves, creating policies and guidelines, the legal aspects of driving, apparatus characteristics, operational safety, maintenance and vehicle inspections. In addition to the classroom portion, VFIS (2008) includes a competency course testing drivers both on a cone course and over the road driving. The cone course has measurable objectives including a penalty point system for violations however; the points are used as an improvement tool since successful completion requires each driver to complete the course within a designated time frame and without striking any cones. VFIS (2008) requires at a minimum 10 hours of supervised drive time where the driver must demonstrate proficiency in a range of maneuvers that includes lane changes, turns and intersections.

VFIS and NFPA share many of the same requirements for driver training which also coincidently match the Washington State Emergency Vehicle Incident Prevention (EVIP)

program. Washington State laws refer fire departments to the Washington State Fire Protection Bureau *Fire Department Vehicle Incident Prevention Standard* (2008) known in Washington State as the EVIP standard. The EVIP standard was developed to exempt drivers from having to obtain commercial drivers licenses (CDL), Revised Code of Washington [RCW] 46.25.050 (2011) allows firefighters to drive emergency equipment without CDL's so long as they have completed the driver training course. Additionally, Washington Administrative Code (WAC) 296-305-04505 *Automotive Apparatus Operational Rules* (1997) refers to the state EVIP program. The EVIP standard is broken down into an administrative section which outlines the program, certification requirements, driver selection and recertification requirements. The general driver requirements section identifies knowledge drivers must obtain through classroom training, preventative maintenance tests drivers must verify are completed, documentation of testing, and driver/operator skills. The EVIP standard provides a list of maneuvers similar to the VFIS and NFPA maneuver lists however, there is not a minimum number of driving hours associated with the list and EVIP contains a sample cone course for drivers to demonstrate ability on.

Yakima County Fire District 12 (YCFD12) policy 2104 *Fire Apparatus Operational Safety* (2008) requires members to complete the Washington State EVIP program before being authorized to operate apparatus. YCFD12 Standard Operating Guideline 6-1 *Driver Training Program* (2007) lists both the EVIP program and NFPA 1002 as the standard set forth in the driver's training program. SOG 6-1 identifies each driver/operator must complete a drivers check sheet, EVIP road course and rodeo yearly to maintain status as a qualified driver. To be successful, drivers must make no critical safety errors and no more than three minor errors during the rodeo and road course.

"Every man or woman who gets behind the wheel of an emergency vehicle should be trained and informed about the legal and moral responsibilities and the technical and practical aspects of driving fire apparatus" (Salka, 2007, p. 134). A key component to driver/operator training is ensuring new drivers have sufficient practice and are familiar with the apparatus under nonemergency driving conditions (Nasta, 2010). Key components of the California Department of Forestry and Fire Protection driver/operator program include a 10 week academy with courses on orientation, structures and rescues, pump operations and wildland apparatus placement (FEMA, 2004). Additionally FEMA (2004) describes Sacramento Regional Training Facilities driver/operator program as having 8 hours classroom, 16 hours driving and 4 hours in a driving simulator. Leidig (2008) recommends developing a safe driving committee to evaluate the driver/operator training program, and include in the driver/operator requirements of the program a quarterly pump operator training refresher, 20 hours driver's training yearly, the VFIS obstacle course bi-annually with one course completed at night, a Department of Transportation physical for all driver/operators and the development of an accident training program for all drivers. Altman (2008) identified the need for objective testing through the use of an independent review annually of the department-specific driver/operator training program and task book. Altman recommends the driver/operator task book include driving skills from NFPA 1002.

"The ideal candidate for [driver] trainer should bring a balanced mix of classroom and behind-the-wheel experience" (Dallessandro, 2005, p. 147). A successful driver/operator training program must also look closely at attitudes toward safe driving set by the leadership of the fire department (Dallessandro, 2009). Dallassandro (2008b) recommends fire departments start every drill with 10 minutes on driver safety and budget training dollars to host guest

speakers to train driver/operators. Erich (2007) advises fire departments to create clear, precise and doable policies and guidelines based upon relevant laws and standards.

The results of the questionnaire and literature review show YCFD12's driver/operator training program contains many of the key components identified in the research. Eighty percent of respondents use the Washington State EVIP program for driver/operator training and 61 percent provide additional training for water tenders and aerials. The key components of driver/operator training identified by respondents were EVIP, rodeo course, road course, written test, pump class and completion of a driver/operator handbook. Seventy five percent use a yearly driver training program to remain proficient and 57 percent use both a subjective and objective skills test to certify driver/operators. Using these results YCFD12 can provide a clear path to driver/operator certification for prospective driver/operators to follow by implementing objective skill tests with pass/fail scores for each of the currently used driver/training subjects. Additionally adding annual skill tests and requiring documented driving and pumping hours are key components to improve YCFD12's driver/operator training program.

Recommendations

The purpose of this research was to identify key components of driver/operator training programs that leads to certification used in similar fire departments. The research shows professional standards exist from National Fire Protection Association, Volunteer Firemen's Insurance Services, Washington State and YCFD12 that apply to driver/operator training. The EVIP program contains key components for fire departments to follow in driver/operator training. The author, based on the results and purpose of this research, makes the following recommendations for the future of YCFD12's driver/operator training program:

Continue to use Washington State EVIP while supplementing the annual refresher training with the VFIS driver training program. The EVIP and VFIS programs meet the standards set forth by NFPA and state law, continuing to use these programs will assure driver/operators meet both National and State standards.

Update YCFD12 SOG 6-1 to include pass/fail scores for each component of new driver training. Increase the minimum passing score on the written test to 90 percent and outline a clear path to driver/operator certification that includes a driver/operator probationary period with the following components; minimum of 10 hours documented over-the-road drive time with a District Officer, completion of the EVIP rodeo cone course without striking a cone or safety violation, completion of the EVIP road course with zero safety violations and completion of the District pump operator academy.

Yearly driver refresher training should include two hours of classroom training followed by objective skill tests both in driving and pumping for an additional four hours of training. These changes to SOG 6-1 will ensure all driver/operators have and maintain the same skill levels and provide clear direction to members wishing to become certified driver/operators.

Review the current drill schedule to identify where driver training opportunities are being missed. Where possible adjust drills to include in the objectives a driver training component. Many key components of successful driver/operator training programs already exist at YCFD12 however, most are not documented. Adding the driver training component to drills will move documentation to the forefront of the drill instructors mind and create an environment where driver training is on-going throughout the year.

To implement these changes the author recommends the training committee develop the pass/fail scores for each skill test followed by updating SOG 6-1 to reflect the changes listed

above. Current YCFD12 driver/operators will begin the updated yearly refresher training in January giving a full 12 months to complete the objectives. SOG 6-1 containing the path to certification should be distributed to all probationary members in their 10th month of probation to advise them of the steps needed to gain driver/operator certification. Each August when new members move from probationary firefighter to firefighter the driver/operator training program should begin with the classroom portion of the EVIP program followed by the pump operator academy. Once both of these courses have been completed the prospective driver/operators will begin their six month probationary period where they are expected to pass all other components of the program. After successfully completing the six month probation and all components of the driver/operator program YCFD12 should issue a driver/operator certificate to each passing member.

Implementing these recommendations will provide a clear path for prospective driver/operators to follow to obtain driver/operator certification, as well as provide a consistent skill level between all YCFD12 driver/operators which increases firefighter safety both on the road and operating at an incident scene.

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